

Appl. No. 09/893,083
Amdt. dated Nov. 9, 2004
Reply to Office action of Aug. 9, 2004

REMARKS

A certified copy of the priority document was filed with the application. Acknowledgement is requested.

The Examiner, in paragraph 2 of the Office Action of August 9 2004, indicates as follows:

2 *Claims 7-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter, computer program. Since computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process without a computer-readable medium needed to realize the computer program's functionality. Therefore, the envelope generation, compression, and expansion program capable of being executed by computer are a nonstatutory functional descriptive material.*

In response to the Examiner's indication in the paragraph 2 of the Office Action, claims 7 to 9 have been amended in line with the Examiner's indication. The amended claims 7 to 9 are thus believed to be patentable under 35 U.S.C. 101.

The Examiner, in paragraphs 4 to 6 of the Office Action of August 9 2004, further indicates as follows:

4 *Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Patent Laid-Open Publication No. H06-164277.*

5. *Regarding claims 1 and 4, Patent Laid-Open Publication discloses an envelope generator and method, comprising:*

an input terminal for having a signal inputted therein (element 61 in fig 5);

a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said signal inputted through said input terminal to impart said intermediate state of envelopes to said signal (see figure 1,sections [0021]-[0022], and

element 66 in figure 5);

a second integrator for respectively modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said signal imparted said intermediate state of envelopes (see figure 1, sections [0021]-[0022], and element 66 in figure 5); and

an output terminal for outputting said signal with said final state of envelopes therethrough (output terminal 68 in figure 5).

6. *Regarding claims 2-3 and claims 5-4, Patent Laid-Open Publication discloses an audio compression/expansion apparatus and method, comprising:*

an input terminal for having an audio signal inputted therein (element 61 in figure 5);

a sampling element for periodically sampling said audio signal to obtain an absolute value in level of said audio signal (the sampling element is inherently included in the system for sampling the signal into sampling point inputted at element 61 in figure 5);

a subtracter for acquiring a difference between said absolute value and a predetermined threshold value (element 64 in figure 5);

a gain generator for generating a gain signal based on said difference between said absolute value and said predetermined threshold value (section [0014], particularly "the multiplied attack signal is then adjusted its signal level". This indicates that a gain generator is included in the system);

an envelope generator including a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal (see figure 1, sections [0021]-[0022], and element 66 in figure 5), and a second integrator for respectively

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modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes (see figure 1, sections [0021]-[0022], and element 66 in figure 5);

a multiplier for multiplying said audio signal by said gain signal with said final state of envelopes (element 67 in figure 5); and

an output terminal for outputting said audio signal multiplied by said gain signal therethrough (output terminal 68 in figure 5).

In response to the Examiner's indication in the paragraphs 4 to 6 of the Office Action, claims 1 to 6 have been amended.

The present invention defined in each of amended claims 1 to 3 is patentably distinguishable over the cited document "D1" (*Japanese Patent Laid-Open Publication No. H06-164277*) for the following reasons.

The envelope generator is defined in amended claim 1 as comprising:

- (1a) an input terminal for having a signal inputted therein;
- (1b) a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of the signal inputted through the input terminal to impart the intermediate state of envelopes to the signal;
- (1c) a second integrator for respectively modifying the intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of the signal outputted from the first integrator to impart the final state of envelopes to the signal; and
- (1d) an output terminal for outputting the signal with the final state of envelopes therethrough, wherein
 - the first attack time is equal to zero,
 - the second attack time is equal to a desired attack time, and
 - the sum of the first release time and the second release time is equal to a desired release time.

From the elements (1b) and (1c) forming part of foregoing amended claim 1, it will

be understood that the envelope generation is executed with the first attack time equal to zero, the second attack time equal to a desired attack time, and the sum of the first release time and the second release time equal to a desired release time. This means that the gain is converged with a desired value at a relatively high accuracy without being affected by the length of the desired attack time.

The cited document D1 discloses a time constant control unit 20 which comprises first and second integrating circuits 21 and 22 for imparting first and second time constants to respective input signals, an absolute value calculating circuit 24 for calculating the absolute value of the difference between an output signal outputted from the first integrating circuit 21 and an output signal outputted from the second integrating circuit 22 to control a third integrating circuit 25 on the basis of the calculated absolute value. The cited document D1, however, fails to disclose the first attack time equal to zero, the second attack time equal to a desired attack time, and the sum of the first release time and the second release time equal to a desired release time. The envelope generator defined in amended claim 1 is completely different in construction from the disclosure of the cited document D1.

Further, the envelope generator defined in amended claim 1 can obtain the advantages that the gain is converged with a desired value at a relatively high accuracy without being affected by the length of the desired attack time. The time constant control unit disclosed in the cited document D1, however, cannot expect the advantages of the envelope generator defined in amended claim 1, resulting from the fact that the cited document D1 fails to disclose the first attack time equal to zero, the second attack time equal to a desired attack time, and the sum of the first release time and the second release time equal to a desired release time. As will be understood from the foregoing description that the envelope generator can allow the gain to be converged with a desired value at a relatively high accuracy, the envelope generator defined in amended claim 1 is also completely different in advantages from the disclosure of the cited document D1.

It will, therefore, be appreciated from the foregoing description about the envelope generator defined in amended claim 1 is completely different in construction and

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advantages from the disclosure of the cited document D1 and that the envelope generator defined in amended claim 1 is patentably distinguishable over the disclosure document D1.

The present invention defined in each of amended claims 2 and 3 is patentably distinguishable over the cited document D1 for the following reasons.

The audio compression apparatus defined in claim 2 is partially constituted by an envelope generator defined in the amended claim 1 which is believed to be patentably distinguishable over the disclosure of the cited document D1 as will be understood from the previously mentioned reasons. It is, therefore, believed that claim 2 is patentably distinguishable over the disclosure of the cited document D1 based on the same reasons as above.

The audio expansion apparatus defined in claim 3 is partially constituted by an envelope generator defined in the amended claim 1 which is believed to be patentably distinguishable over the disclosure of the cited document D1 as will be understood from the previously mentioned reasons. It is, therefore, believed that claim 3 is patentably distinguishable over the disclosure of the cited document D1 based on the same reasons as above.

The present invention defined in each of amended claims 4 to 6 is patentably distinguishable over the cited document D1 for the following reasons.

The envelope generation method is defined in amended claim 4 as comprising:

- (2a) a first step of having a signal inputted;
- (2b) a second step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of the signal inputted in the first step to impart the intermediate state of envelopes to the signal;
- (2c) a third step of respectively modifying the intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of the signal outputted in the second step to impart the final state of envelopes to the signal; and
- (2d) a fourth step of outputting the signal with the final state of envelopes, wherein the first attack time is equal to zero,

the second attack time is equal to a desired attack time, and
the sum of the first release time and the second release time is equal to a desired
release time.

From the elements (2b) and (2c) forming part of foregoing amended claim 4, it will be understood that the envelope generation is executed with the first attack time equal to zero, the second attack time equal to a desired attack time, and the sum of the first release time and the second release time equal to a desired release time. This means that the gain is converged with a desired value at a relatively high accuracy without being affected by the length of the desired attack time.

The cited document D1 discloses a time constant control unit 20 which comprises first and second integrating circuits 21 and 22 for imparting first and second time constants to respective input signals, an absolute value calculating circuit 24 for calculating the absolute value of the difference between an output signal outputted from the first integrating circuit 21 and an output signal outputted from the second integrating circuit 22 to control a third integrating circuit 25 on the basis of the calculated absolute value. The cited document D1, however, fails to disclose the first attack time is equal to zero, the second attack time is equal to a desired attack time, and the sum of the first release time and the second release time is equal to a desired release time. The envelope generation method defined in amended claim 4 is completely different in construction from the disclosure of the cited document D1.

Further, the envelope generation method defined in amended claim 4 can obtain the advantages that the gain can be converged with a desired value at a relatively high accuracy without being affected by the length of the desired attack time. The time constant control unit disclosed in the cited document D1 cannot expect the advantages of the envelope generation method defined in amended claim 4, resulting from the fact that the cited document D1 fails to disclose the first attack time equal to zero, the second attack time equal to a desired attack time, and the sum of the first release time and the second release time equal to a desired release time. As will be understood from the foregoing description that the envelope generation method can allow the gain to be converged with a desired value

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at a relatively high accuracy, the envelope generation method defined in amended claim 4 is also completely different in advantages from the disclosure of the cited document D1.

It will, therefore, be appreciated from the foregoing description about the envelope generation method defined in amended claim 4 is completely different in construction and advantages from the disclosure of the cited document D1 and that the envelope generation method defined in amended claim 4 is patentably distinguishable over the disclosure of the cited document D1.

The present invention defined in each of amended claims 5 and 6 is patentably distinguishable over the cited document D1 for the following reasons.

The audio compression method defined in claim 5 is partially constituted by an envelope generation method defined in the amended claim 4 which is believed to be patentably distinguishable over the disclosure of the cited document D1 as will be understood from the previously mentioned reasons. It is, therefore, believed that claim 5 is patentably distinguishable over the disclosure of the cited document D1 based on the same reasons as above.

The audio expansion method defined in claim 6 is partially constituted by an envelope generation method defined in the amended claim 4 which is believed to be patentably distinguishable over the disclosure of the cited document D1 as will be understood from the previously mentioned reasons. It is, therefore, believed that claim 6 is patentably distinguishable over the disclosure of the cited document D1 based on the same reasons as above.

In view of the foregoing description, it is respectfully submitted that the present application is thus in condition for allowance.

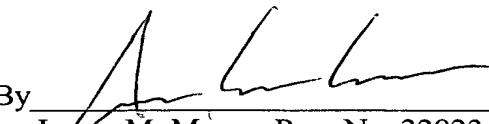
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Respectfully submitted,

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